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SOME NEW BEETLES IN THE FAMILIES CANTHARIDÆ (LAMPYRIDÆ), PTINIDÆ, AND SCARABÆIDÆ, FROM WESTERN NORTH AMERICA, WITH NOTES UPON OTHERS.

BY EDWIN C. VANDYKE.

CANTHARIDÆ (LAMPYRIDÆ).

✓ *Plateros californicus* n. sp.—Moderately robust, black, prothorax with sides fulvous. Antennæ extending backwards beyond middle of body, distinctly serrate, second joint small and transverse, third triangular, but little longer than broad and about two thirds length of fourth, fourth slightly broader than third and one third longer than broad, fifth as broad as third, longer than fourth but distinctly less than twice as long as wide, sixth as long as fifth, slightly narrower and about twice as long as broad, the outer joints gradually narrower, joints 3-9 with outer angle acute and distal side of joint oblique. Prothorax broader than long, not carinate at apex but with apical margin notched, basal cellule rather broad and deep, with its basal and lateral margins elevated and gradually spreading out and merging with the disc in front. Elytra with alternate interstitial lines but slightly more elevated and then only near base, otherwise as in *canaliculatus*, which it superficially resembles. Length 8 mm., breadth 3 mm.

Type, a unique male in my own collection, collected by myself at Carrville, Trinity Co., Cal., July 5, 1913.

This species closely resembles *P. canaliculatus* Say but differs principally in having more robust and more distinctly serrate antennæ, and in having a very broad basal cellule on the prothorax as against a somewhat linear one in that as in most other species of the genus. This is the first species of the genus to be found on the Pacific coast.

Calochromus slevini n. sp.—Black, pronotum and elytra to slightly beyond middle crimson, apical portion of the elytra blue black, velvety with ex-

tremely fine short pubescence. Head with vertex finely, sparsely punctured and pubescent, a well-defined triangular impression between the eyes, the eyes convex and of moderate size, muzzle short, no beak, antennæ over one half length of body, second joint about one half as long as the third which is shorter than the fourth, outer joints moderately compressed, about twice as long as wide, distal side slightly oblique. Pronotum quadrate, three fourths as long as wide, front angles rounded, posterior angles acute though rounded at extreme apex and divergent, sides thickened and reflexed, not impressed at middle, with a strong ridge running from the middle of the sides obliquely and slightly forwards on to the disc which is only feebly channeled near the base, apical margin thick and strongly reflexed, the basal thinner and less reflexed. The scutellum black and truncate behind. The elytra elongate, with sides parallel and narrowly margined, but little wider than the prothorax, closely but indistinctly striate and with punctures not evidently defined, the alternate intervals perceptibly more prominent, especially posteriorly, but not costiform, not reticulated. Middle and hind tibia slightly curved. Length 9 mm., breadth 3 mm.

♂ smaller, antennæ reaching to beyond middle of body, seventh ventral segment broadly and deeply semicircularly emarginate.

♀ larger, 12 mm. in length by 4 mm. in breadth, antennæ not reaching middle of body, posterior angles of pronotum right and less prominent, seventh ventral segment with small apical incisure closed at apex by membrane and with triangular impression extending forwards.

Type male and female in my own collection, collected September 19, 1916, at Gilroy Hot Springs, by Mr. L. S. Slevin. These, together with a third specimen, were kindly presented by the captor, after whom I take pleasure in naming it.

This species, according to its physical characters, would follow *C. fervens* Lec., as indicated by the latest table,* but according to its coloration would come closest to *C. dimidiatus* Lec. From the latter, which is confined to the Sierras and northern California, it differs by having the pronotum and base of elytra of a scarlet rather than an orange color, by having the apical blue-black color not extending forwards as far as the middle of the elytra and by meeting the crimson squarely, whereas in the other it extends fully to the middle and to a greater extent at the suture than at the margins, by not having the side margin of pronotum impressed at the middle, and by having the posterior tibia slightly curved.

Ginglymocladus (Gr. hinge + branches) n. gen.—Elongate, somewhat parallel, in shape simulating *Calochromus*, above somewhat closely punc-

* "Synopsis of the Lampyridæ of the United States," by John L. Leconte, Trans. Am. Ent. Soc., Vol. IX (1881), p. 28.

tured and slightly rugulose, elytra narrowly margined. Head concealed under the prothorax, short and broad; eyes distant, convex, moderate in size, finely granulated; antennæ inserted just in front of the eyes, moderately widely separated at base, eleven jointed, strongly pectinated, the processes fusiform and with a distinct joint at point of attachment so that they can be either adducted or abducted, first joint somewhat triangular, hardly longer than wide, second shorter and narrower, transverse, third triangular, longer and broader than second, outer margin oblique, joints 4-10 triangular, longer than broad and each with a fusiform internal appendage almost as long, as long, or slightly longer than the joint and arising about the middle or beyond, the eleventh elongated and somewhat rounded at apex, not acute sinuate; front concave behind the antennæ, convex in front; labrum transverse, with front margin emarginate, distinctly separated from the front; mandibles acute and toothed; palpi moderate in length, maxillary longer, last joint somewhat fusiform and pointed at tip. Prothorax transverse, lateral and apical margins of moderate width, reflexed, and thickened at edge, posterior margin less distinctly defined. Scutellum small, somewhat quadrilateral. Elytra with rounded humeri, elongate, subparallel, broadest one third distance from apex, disc rather flat, without striæ or distinctly elevated lines but more or less uniformly granulose, side margin narrow and but slightly reflexed, epipleuræ hardly evident. Front coxæ conical, contiguous, middle coxæ quadrate, contiguous, hind coxæ narrow, transverse, contiguous. Legs slender, trochanters on the inner side of thighs, tarsi with joints 1-4 gradually shorter, third and fourth slightly lobed beneath, fifth slender, claws somewhat dilated at base. Abdomen with seven ventral segments.

This peculiar genus, which I have founded upon *G. discoidea* and to which I have also added a second new and closely related species, occupies a somewhat anomalous place in the family. It appears to be more closely related to *Matheteus* than to any other genus in our fauna and like it has the contiguous middle coxæ, characteristic of the subfamily to which that belongs, as well as the pectinate antennæ, though they are of a different type. It, however, has the facies and hardly discernible epipleuræ of certain of the elongate members of the preceding subfamily Lycidæ.

Ginglymocladus discoidea n. sp.—Elongate, subparallel, flattened, black except entire border of prothorax, basal, lateral, and sutural margin of elytra, V-shaped impression on front, clypeus, labrum, underside of head, prothorax and mesosternum, parts of coxæ and trochanters, which are rose-colored, and the tips of last joint of antennæ and palpi, the last two tarsal joints, the last abdominal segment and posterior margin of preceding, which are ferruginous. Head with broad V-shaped depression on

front, a slight convexity between eyes; antennæ extending backwards to about middle of body, first joint moderate in size, second small and transverse, third somewhat larger and triangular, joints 4-10 triangular in shape, somewhat longer than broad and gradually decreasing in length outwards, with a fusiform process slightly shorter than joint attached to the outer side of the frontal angular part of each, eleventh joint elongate, longer than fourth, slightly constricted beyond its middle, and rounded at apex; mandibles moderately prominent, acute, and with tooth near base. Thorax about twice as broad as long, basal margin barely rounded, lateral margins straight and but slightly diverging from base, the apical margin broadly rounded, both basal and apical margins indistinctly notched at middle, all margins thickened and distinctly reflexed, disc somewhat flattened, finely and somewhat sparsely punctured, a fine hair arising from each puncture. Elytra at base slightly broader than thorax, with sides straight though gradually diverging to posterior two thirds, thence rounded to individually rounded hind angles, humeri moderately prominent, disc flattened, rather finely and somewhat closely punctured, each puncture with a hair arising from the same, and slightly transversely rugulose. Beneath rather finely and moderately closely punctured. Femora and tibia slightly flattened, the tarsal claws each with broad tooth at base. Length 6 mm., breadth 2.25 mm.

Type and paratype, both males, in my own collection. They were taken in Lagunitas Canon, Marin Co., Cal., crawling over the herbage, the type by myself April 23, 1916, the other by Mr. A. Muzzall, April 11, 1915.

Ginglymocladius luteicollis n. sp.—Elongate, subparallel, flattened, piceous except the thorax outside of a piceous discal spot and median portions of last three abdominal segments which are luteous and head, legs, and palpi which are piceo-luteous. Head with front convex and shining, a slight transverse depression between eyes; antennæ extending backwards to about middle of body, joints as in preceding species except that from 4-10 they are almost twice as long as broad and the angular portions to which the processes are attached are only about one third from the distal end instead of near the middle; mandibles acute. Thorax slightly less than twice as wide as long, basal margin slightly convex backwards, sides arcuate and apex broadly rounded, all margins thickened and slightly reflexed, disc somewhat flattened and very finely sparsely punctured, the surrounding fossa more coarsely and densely punctured, a fine hair arising from each puncture. Elytra at base slightly broader than thorax, gradually broader to posterior two thirds, then broadly rounded to apex, the hind angles individually rounded but not markedly so, humeri moderately prominent, disc flattened, finely, somewhat sparsely punctured, each puncture with minute hair, finely scabrous and with three vague elevated lines. Beneath rather finely and sparsely punctured. The legs are slender and not particularly compressed and the tarsal claws are broad at base without distinctly defined tooth. Length 5.25 mm., breadth 2 mm.

Type, a unique male in my collection, collected many years ago and probably in the middle Sierras of California.

This species differs from the preceding primarily as regards the color, the frontal characters, the antennal joints, the shape of the thorax, and the legs.

Matheteus theveneti Lec.—This very rare and beautiful species, first collected at Mariposa, Cal., has in recent years been taken in Humboldt Co., Cal., by Professor E. O. Essig and others.

Phausis (*Lamprohiza*).—In comparing my series of *P. splendidula* Linn. with *P. reticulata* Say., both collected in the mountains of North Carolina, I find that they can be best separated by size, the former averaging 8 mm. in length as against 6 mm. for the latter. The thoracic characters as given by LeConte in his synopsis are not reliable, for the thorax in *reticulata* is more often "wider than long" than it is "not wider than long."

In my series of *P. riversi* Lec., assembled from various places in northern California and the Sierras, I find that there is a great amount of variation as regards the color of the prothorax. In most, this is typical, yellow with a piceous discal spot, but these are others with it entirely yellow and even the scutellum yellow, while one, from Inverness, Marin Co., is entirely black with the exception of the extreme margin, which is yellow. A few specimens also have the sixth ventral segment luminiferous, not merely yellow. The generic name *Phausis* of LeConte should supplant *Lamprohiza* of Motschulsky, according to the more recent European authorities.

Masterocerus californicus n. sp.—Slender, flattened, subopaque, piceous, the legs, mouthparts, and last two abdominal segments luteo-piceous. Head indistinctly scabro-punctate, broader than long, antennæ longer than head is broad, first joint as long as second and third together, which are simple, joints 4-10 slightly increasing in length, each with two long cylindrical apical processes, about three times as long as the joints themselves, eleventh slightly longer than tenth and provided with a single process which arises from its apex. Prothorax a little wider than long, as wide as head and slightly narrower than elytra, median half of base broadly lobed, posterior angles rectangular and blunt, sides straight and parallel for posterior two thirds, then rounded to apex, apex slightly arcuate, disc flat. Elytra less than one half as long as the abdomen. Length 7 mm., breadth 1.25 mm.

Type, a unique in my collection, collected at Sobre Vista, Sonoma Co., Cal., May 30, 1910, by Mr. J. Aug. Kusche, and kindly presented by him. A second, from Kaweah, Cal., is in the collection of Mr. Ralph Hopping.

This very interesting species differs from both *M. texanus* Lec. and *M. opacus* Horn in the fact that the head and prothorax are both more transverse, that the base of the thorax is more dis-

tinctly lobed, and that the antennæ are distinctly longer than the head. In *texanus*, the disc of the thorax is slightly convex, but in this species it is flat as in *opacus*. In *californicus* the two processes which arise from each intermediate antennal joint arise close to the apex, not basally as stated by LeConte for *texanus*, and the eleventh joint most distinctly has a single terminal process of its own. *Californicus* is also mainly piceous in contrast to the usual testaceous color of the other two. The color is, however, inclined to vary in all, I believe.

PTINIDÆ.

Eucrada robusta n. sp.—Elongate, parallel, piceous, tarsi paler. Head rather finely and sparsely granulate and sparsely clothed with fulvous pile, the antennæ reaching to beyond the middle of the body, second joint small, third two thirds length of fourth and distinctly serrate, joints 4-10 of about equal length and markedly serrate, the projecting processes almost equaling the shank, the eleventh joint longer than tenth and slightly clavate. Prothorax broader than long, very convex, the disc compressed basally, a shallow groove just back of apical margin, surface granulate, less markedly at sides. Elytra three times the length of prothorax, over one third wider, evenly convex, closely and coarsely striate-punctate, the punctures irregular on disk but quite regular and larger at sides, intervals narrow, each with a row of minute depressed fulvous hair, narrowly margined at sides but more broadly so at apex. Beneath finely, rather sparsely punctate, except last ventral and pleura, which are granulose. Length 8 mm., breath 3.25 mm.

Type, a unique female in my collection, taken in the Selkirk Mountains of British Columbia, during the summer of 1905, by Professor J. C. Bradley and kindly presented by him.

This species is most distinct, its larger size, uniform color, and regular convex elytra enabling it to be readily separated from *E. humeralis* Melsh., the only other species in the genus.

Ernobius cupressi n. sp.—Elongate, moderately robust, brown with luteous areas along suture near apex, slightly shining, moderately well clothed with short, fine recumbent hair. Head granulate-punctate, eyes separated on the front by about twice their vertical diameter, slightly smaller in female and more broadly separated; antennæ of male extending to last quarter of elytra, all joints longer than wide, joints three and four nearly equal and about twice as long as wide, 5-7 but slightly increasing in length outwards and at least three times as long as wide, eighth fully four times as long as wide, ninth as long as seventh and eighth together, 9-11 of

about equal length and five or six times as long as wide; the antennæ of female extending to about middle of elytra; joints three and four nearly equal, narrow and about twice as broad as long, joints five and six slightly longer and more robust and each of about similar length, joints seven and eight slightly longer, ninth about two thirds as long as two preceding together, 9-11 of about equal length and from three to four times as long as wide. Prothorax three fifths as long as broad, as wide as elytra, sides strongly arcuate and broadly margined, front and hind angles rounded, anterior margin transverse, base broadly lobed at middle, surface quite closely granulate-punctate. Elytra parallel, over three times as long as thorax and twice as long as broad, surface slightly more finely and sparsely punctate than thorax, and with costæ vaguely indicated. Beneath finely closely punctate on abdomen, more coarsely in front. Basal tarsal joint slightly shorter than the two following together. Length 6 mm., breadth 2.5 mm.

Type male and female in my collection, collected at Carmel, Monterey Co., Cal., by Mr. L. S. Slevin. They were beaten from Monterey cypress, *Cupressus macrocarpa* Gord. Thirteen other specimens in my collection as well as numerous ones in Mr. Slevin's collection have also been examined.

This splendid species is most closely related to *E. socialis* Fall, a species found in the same territory but generally on the Monterey pine, and should perhaps precede it in the table.* It differs in being much larger and more robust, so far the largest species to be listed in our fauna, less shining, with denser and longer pile, with the intermediate joints of the antennæ in the male proportionally longer, so that there is not the great contrast in length between the three terminal joints and those which precede that there is in the other species, and with the anterior margin of the prothorax transverse and not arcuate.

Vrilletta decorata n. sp.—Moderately robust, piceous black, the elytra variegated with yellow, the usual markings consisting of an irregular oblique patch just posterior to the base and involving the intervals from 2-5, and a series of stripes along the apical portions of the third and seventh intervals and the basal part of the ninth, with very fine, short, fulvous pubescence. The head granulate-punctate, with a faint longitudinal ridge; the antennæ extending beyond hind angles of prothorax, joints 3-8 serrate and slightly more than one half width of ninth, the ninth and tenth much enlarged and serrate, the ninth slightly longer than broad and the tenth fully one fourth longer and both obliquely truncate at distal

* "Revision of the Ptinidæ of Boreal America," by H. C. Fall, Trans. Am. Ent. Soc., Vol. XXXI (1905), p. 140.

end, the eleventh joint fusiform and a little longer than tenth. Prothorax three fifths as long as broad, sides widely margined, the base with median third moderately lobed, the apex moderately arcuate, the disc very convex, only slightly depressed at sides back of anterior margin, surface moderately closely and finely granulate-punctate. The elytra distinctly less than three times as long as prothorax, the striations very finely punctate, the intervals convex, apices truncate and moderately margined. Length 5.5 mm., breadth 2.5 mm.

Male narrower and smaller than female and with eighth and ninth antennal joints a little longer proportionally.

Type male and female in my collection, taken in Oakland Hills, Cal., May 14, 1911, and April 26, 1908, both from the coast live oak, *Quercus agrifolia* Née.

This is the commonest species of the genus and has been generally classed as *V. expansa* Lec., but it is quite distinct. Fall, in his "Revision of the Ptinidæ,"* intimated that it was probably so, but he lacked material enough to warrant him in separating it then. With ampler series which recent years' collecting has provided, I find that the separation can be readily made. The typical *V. expansa* Lec. differs from this species by being generally longer and of a uniform pruinose color, by having the prothorax proportionally longer, five sixths of breadth, the sides more decidedly margined and explanate, especially posteriorly, the base with median area formed into a more prominent lobe, the disc quite decidedly compressed in front of the middle, so that when the thorax is viewed directly from above, the lateral contour is much sinuated, as contrasted with the slightly arcuate one of the other, the surface more closely punctured, and the elytra with the striae more distinctly punctured and the apices more broadly truncate. The color pattern in *decorata* is variable, but I have never seen an absolutely immaculate specimen. The species ranges from Washington to Southern California, but appears to be found only near the coast. It breeds in the dead twigs and branches of various species of oak, the California laurel, and so forth. The true *V. expansa* Lec. seems to be more of a northern and mountainous species. My specimens are from Corvallis, Ore., Northern Trinity Co., Lake Tahoe, and Tuolumne Co., Cal.

*L. c., p. 195.

SCARABÆIDÆ.

Aphodius sigmoideus n. sp.—Oblong, moderately convex, with sides almost parallel at middle, black with small spot at anterior angles of thorax pale, legs rufotestaceous, elytra piceous with testaceous design, and antennæ rufo-testaceous with piceous club. Head moderately coarsely, regularly, and rather sparsely punctured; front distinctly trituberculate, the median tubercle somewhat acute and the most prominent, no transverse ridge uniting them; clypeus hemihexagonal, apex widely and quite deeply emarginate, and with the angles rounded, flattened just back of emargination, sides broadly margined and with margins much reflexed, genæ distinctly acutely angulated. Prothorax narrowed in front, sides feebly arcuate, hind angles obtusely rounded, disc sparsely, finely punctured with larger scattered punctures, somewhat denser at the sides, basal margin well defined. Scutellum small, slightly concave and coarsely punctured anteriorly. Elytra just perceptibly narrower than the thorax, rather deeply striate, striæ finely, shallowly, and sparsely punctured, intervals broad and flat, very minutely and sparsely punctured, the design consisting of a fairly well-defined testaceous sigmoid marking starting on the second interval one quarter distant from base, curving outwards to the seventh interval, thence inwards to the third, and finally outwards to the eighth interval, the basal portion connected to the base of the elytra by a light patch on the second, third, and fourth intervals, and another running up the sixth to the humerus, the posterior portion of the first interval and also the apical margin somewhat light. Body beneath with moderately coarse punctuation on sides of abdomen and mesothorax, elsewhere smooth or with very fine, sparse punctuation; mesosternum not carinate. Anterior tibia distinctly tridentate, feebly crenulate above, and with the first joint of tarsus distinctly shorter than the second. Posterior femora with few fine punctures on outer face and series of coarser near posterior margin; the hind tibia fimbriate with short equal spinules; the first joint of hind tarsus slightly longer than the following two together. Length 9.25 mm., breadth 4.5 mm.

Type, a unique in my collection, captured by myself in Paradise Park, Mt. Rainier, Wash., altitude 6,000 feet, in late July, 1905.

This very large and distinct species is the largest in western North America, being somewhat larger than *A. rubidus* Lec., and only exceeded in size among American species by *A. fossor* L. and *A. rufipes* L. It belongs in Dr. Horn's table,* in his "Group B" in the subgenus *Aphodius* and should come just before *A. congregatus* Mann, a species which somewhat suggests it but is much smaller and with less of an elytral design.

* "A Monograph of the Aphodini Inhabiting the United States," by George H. Horn, M.D., Trans. Am. Ent. Soc., Vol. XIV (1887), pp. 1-110.

Psammodius grundeli n. sp.—Oblong, slightly broader behind, convex, moderately shining, piceous, legs rufous, antennæ rufo-testaceous. Head moderately convex, coarsely and moderately closely verrucose, a distinctly defined linear transverse impression separating verrucose area from occiput, the occiput smooth except for a few minute punctures near anterior margin; clypeus broadly and shallowly emarginate, angles each side obtuse and rounded, sides slightly arcuate, genæ obtuse. Thorax one third wider than long, slightly narrower in front, anterior angles very obtuse and rounded, hind angles broadly rounded, base arcuate, the marginal line distinct, disc convex, with median depression extending from base to middle, with coarse and somewhat widely separated punctures and a few very minute punctures on intervening areas, with deep lateral transverse impression just back of anterior margin and another less defined half way to base, this latter extending vaguely on to the disc. Elytra as wide at base as the prothorax, humeri obtuse, sides nearly straight, slightly divergent, striæ deep, moderately closely crenately punctured, intervals convex, smooth. Beneath slightly scabrous at sides of mesothorax and with abdomen quite smooth. Posterior femora stout, smooth, the marginal line moderately deep, almost reaching trochanter; the tibia moderately stout, without oblique ridges, the spurs unequal, slender; the tarsi longer than one half the tibia, the first joint somewhat broader at apex. Length 3.25 mm., breadth 1.25 mm.

Type in my own collection. Paratypes deposited in the U. S. National Museum and California Academy of Sciences.

Twelve specimens in my collection served as a basis for this description. They were all collected at Martinez, Cal., in June, 1910, by Mr. J. G. Grundel, after whom I take pleasure in naming it. Other specimens in the collection of Dr. F. E. Blaisdell, also from the neighborhood of Martinez, have been seen.

This species is perhaps most closely related to *P. nanus* De-Geer. It is, however, not only larger, but more elongate, with the longitudinal and transverse impressions better defined, and the punctuation of the elytra coarser.

Psammodius desertus n. sp.—Oblong oval, broader behind, convex, shining, rufo-piceous, disc of thorax and occipital ridge piceous, elytra and femora testaceous. Head coarsely, irregularly punctured in front, finely and sparsely on occiput, with distinct yet slightly elevated transverse ridge in front of occiput, and vague short secondary transverse elevation between this and clypeal margin; clypeus broadly emarginate, a small, obtuse reflexed tooth on each side, the sides slightly arcuate, a slight situation at end of frontal suture; genæ feebly prominent, obtuse. Thorax one third wider than long, base broadly rounded, sides slightly arcuate and convergent forwards, fimbriated, no posterior angles, anterior angles obtuse, basal marginal line distinct, disc convex, moderately coarsely and

evenly punctured, punctures separated by at least their own diameter, longitudinal and transverse depressions absent. Elytra wider at base than thorax and slightly narrower than widest part of thorax, humeral angles rounded, sides almost straight and slightly divergent to posterior three fourths where elytra is broadest, thence broadly rounded to apex, striæ well defined but not deep, distinctly though shallowly punctured, intervals but slightly convex, with even ones broader than odd, a row of fine punctures down middle of each. Beneath sparsely punctured. Posterior femora stout, oval, the marginal line absent; the middle and posterior tibia moderately stout with two oblique ridges externally, the spurs of middle tibia long, about equal to first two tibial joints, and unequal, those of posterior stouter and subequal; the tarsi about two thirds the length of tibia, the first joint longer than two following and slightly broader at apex, the tarsal claws about two thirds length of last tarsal joint. Length 4 mm., breadth 2 mm.

Type and paratype in my own collection, collected by my friend, Mr. J. C. Bridwell, in the Imperial Valley, Cal., in February, 1911.

This species, according to Dr. Horn's table,* would come immediately after *P. caelatus* Lec., and before *P. hydropicus* Horn, being of the robust type and having the oblique ridges on the posterior tibia as in the former species and the thorax without transverse grooves as in the latter. It is even closer to the recently described *P. ambiguus*† Fall, as regards its general color, thoracic and tarsal characters, but is amply distinct, as was proven by Mr. Fall, who very kindly compared it with his type. Its main difference from this last is in regard to the type of sculpturing on the head.

Dichelonycha oregona n. sp.—Size and form of *fulgida* and *crotchii*; black except elytra, antennæ, forelegs, middle and hind thighs which are testaceous; upper surface sparsely clothed with short, fine, brown hair, the lower with a rather dense covering of coarse white pile. Head including eyes distinctly more than half as wide as thorax, densely, coarsely, and more or less regularly punctate, clypeal suture impressed, strongly angulate; clypeus moderately reflexed, truncate in front, with lateral angles broadly rounded and sides a little convergent anteriorly; antennæ nine-jointed, with club subequal in length to funicle, terminal joint of maxillary palpi widened apically and broadly obliquely truncate. Thorax without median groove, surface moderately coarsely and closely punctate laterally, more finely and sparsely on disc, basal and apical marginal lines dis-

* L. c., p. 93.

† "Coleoptera of New Mexico," Fall and Cockerell, Trans. Am. Ent. Soc., Vol. XXXIII (1907), p. 241.

tinctly impressed, sides obtusely and somewhat sharply angulated just before the middle, more or less straight in front of angulation, distinctly sinuate posteriorly, hind angles obtuse, sharp, and well defined. Elytra rather coarsely and densely punctured. Spurs of hind tibia slender, nearly equal. Beneath rather finely and moderately closely punctured. Length 9 mm., breadth 3.5 mm.

The female differs from the male described above in being more robust, both as regards prothorax and body, having a breadth of 4 mm., in being testaceous except for the sides of pronotal disc and metapleura which are piceous, in having the antennal club much smaller, barely equalling the joints from 2-9.

Type male and female in my own collection, paratypes deposited in the U. S. National Museum and California Academy of Sciences.

This description is based upon twelve specimens collected by Mr. F. W. Nunenmacher at Waldo, Josephine Co., Ore., June 11, 1910. A much larger series which I have also seen is in Mr. Nunenmacher's own collection. The species is fairly constant as regards characters and coloration and is most nearly related to *D. fulgida* Lec. It differs from that, however, not only in color, but in lacking the metallic luster, in having but a sparse pronotal vestiture, in female as well as male, whereas in *fulgida* the vestiture is quite dense, in having the thorax more transverse, in possessing a less uniform type of pronotal punctuation, and by having the lateral angles of the prothorax much more sharply formed. Some few of the paler females of *fulgida* superficially approach the above, but these are more rufous than castaneous, as well as distinguished by the characters as given above. *D. pallens* Lec. is much smaller and proportionally more robust, besides having other distinguishing characters such as a different type of clypeus and prothorax. *D. testaceipennis* Fall has the same color pattern but is generally more robust and more shining, has the prothorax far less angulated at the sides, a less dense pubescence beneath, and so forth.

Dichelonycha clypeata Horn.—Several females of this rare species which have come into my possession since Mr. Fall's Revision,* collected at San Mateo, Cal., March 31, 1912, by Mr. Hermann Kusche, and at Grizzly Peak, Alameda Co., Cal., February 15, 1913, by Mr. J. C. Birdwell, show that the

* "Notes on *Dichelonychia* and *Cantharis*, with Descriptions of New Species in Other Genera," by H. C. Fall, Trans. Am. Ent. Soc., XXVII (August, 1901), p. 277-310.

females are not only generally larger and more robust than the males, a length of 11 mm. and a breadth of 4.5 mm., as against a length of 9.5 mm. and a breadth of 3.5 mm. for the males, but that they have proportionally a more robust prothorax, with the sides more rounded, and more generally piceo-testaceous in color as contrasted with the usual uniform black of the males. In this last regard they agree with the only two other females known, the type female in the Horn collection and the female in the LeConte collection.

Dichelonycha decolorata Fall.—This species has been found to be one of the characteristic insects of that most interesting faunal region situated about Monterey, Cal. They are very abundant during May, flying about the Monterey pines.

Dichelonycha vicina Fall.—I find this species in the coast belt of California as well as in the Sierras. I have specimens from the following coastal countries: Santa Cruz, Marin, and Sonoma. It is generally found towards the last of May and first of June, about a month later than the last *D. valida* Lec., a species with which it is often confused, and the specimens are generally to be found about the Douglas firs, whereas the others favor the redwoods.

Cremastochilus hirsutus n. sp.—Robust, castaneous, subopaque, clothed with yellowish pubescence, long on the elytra and median portion of pronotum, elsewhere moderate in length. Head moderately closely punctured posteriorly, finely and sparsely punctured in front, occipital region transversely depressed, widest across eyes and rapidly narrowing behind them; clypeus viewed from above, rounded at sides and almost transverse in front, with a well-marked carina at middle which, however, does not reach the anterior margin but projects forward free and horn-like, margin widely reflexed and forming an elevated semicircle as seen from in front, fimbriated at sides; submental plate transversely oval, pointed behind, the sides and posterior margin reflexed, the latter quite markedly. Thorax broad, almost as wide as the elytra, narrowed behind, sides arcuate in front, suddenly excavated posteriorly to the posterior angles, which are acute, of moderate length, and project directly backwards, anterior angles with a deep incision forming in front an auriculate lobe, anterior margin deeply semicircularly emarginate, disc trilobed, the median portion somewhat depressed, with a longitudinal impression at middle, surface coarsely but shallowly punctured and somewhat subopaque, the lateral portions coarsely and deeply punctured outwardly and smooth toward inner bounding sulci and posterior angles. Elytra with disc flat, sides nearly vertical, discal region with irregular, shallow, elongate, and more or less confluent variolate foveæ, surface more or less subopaque. Body beneath coarsely, sparsely punctured on thorax, finely punctured in transverse rows on abdomen, all markedly hairy as above. Legs not unusually dilated, anterior tibia with the upper tooth near the middle and the terminal long and

curved, middle and posterior tibia of normal form, rather thick, more slender at base, and with small, acute dentation at middle; tarsi ambulatorial, cylindrical, and at least two thirds length of tibiæ. Length 12 mm., breadth 4.5 mm.

Type, a unique in my own collection, which was captured near Prescott, Ariz., June 11, 1910, by Mr. J. Aug. Kusche and by him kindly presented to me.

This markedly hairy species belongs with that group of species having a trilobed prothorax, and, according to Horn's latest revision of that group,* should come immediately after *C. saucius* Lec. It has, in common with that, the tibia of normal form, the anterior tibia with the upper tooth near the middle and the middle and hind tibiæ each with a small tooth at middle, as well as the straight hind angles of the prothorax. It differs, however, from that species in being very hairy and subopaque, whereas that is quite smooth and shining, in being proportionally broader, in having the anterior margin of the clypeus almost transverse, in contrast to the well-rounded and almost pointed one of the other, in having the clypeal carination not reaching the clypeal margin, but projecting forwards free and horn-like, in having the sides of the thorax strongly excavated just before the hind angles, and in having the hind angles themselves rather long, at least twice the length of those in the other.

Cremastochilus bifoveatus n. sp.—Black, opaque. Head densely punctured, front flattened, with broad shallow foveæ near sides, no defined margin anteriorly; clypeus as wide as head, feebly arcuate in front, rounded at sides, anterior margin broadly reflexed; submental plate smooth, transversely oval, pointed behind, flat at bottom, margins strongly reflexed. Thorax broader than long, four fifths breadth of elytra, broadest slightly behind middle, sides moderately arcuate, anterior angles fairly prominent in front, foveate and pubescent within but without transverse impression behind, posterior angles triangular, smooth, separated from pronotum in front by an oblique impression, and slightly retracted at sides, the outer margin forming a decided notch where it meets the sides of the thorax in front, disc somewhat flattened, with median longitudinal impression but vaguely defined, surface very coarsely punctured, more closely at sides. Elytra flat on the disc, very vaguely bicostate, surface coarsely foveate punctate. Pygidium with similar punctuation as elytra. Body beneath coarsely punctate, more shining. Legs ambulatorial, anterior tibiæ biden-

* "Descriptions of New North American Scarabæidæ," by George H. Horn, M.D., Trans. Am. Ent. Soc., Vol. XII (1885), p. 126.

tate near the tip, middle and posterior slender at base, gradually broader to tip and with an acute spine on posterior margin just posterior to middle; tarsi elongate, but slightly flattened, and middle and hind pair almost as long as the tibiae. Length 11.5 mm., breadth 5.25 mm.

Type and paratype in my own collection, collected at Flagstaff, Ariz., May 5, 1916, by Mr. T. N. Gooding and presented to me by Mr. Preston Clark. A third specimen in my collection which was collected at Vernon, British Columbia, in May, by Mr. W. H. Brittain, does not differ in the least from the preceding, which would indicate that the species has a wide range in the Great Basin.

In the table of *Cremastochilus* given by Horn* it would come nearest to *C. crinitus* Lec., and it is in fact quite closely related to that. It differs from it though in having the front of the head more coarsely punctured, not margined, and by possessing a shallow and isolated fovea at each side, the front in the other being distinctly margined and possessing a shallow depression within, which joins with the rather large lateral fovea, in having the thorax more transverse, with sides less rounded, the disc flatter and more coarsely punctured, the hind angles larger and with their outer margin not as distinctly continuous with the side margin of the prothorax in front.

Cremastochilus armatus Walk.—As surmised by Dr. Horn, this species is undoubtedly the same as *C. pilosicollis* Horn and, antedating it, will have to replace it. It is the characteristic species of the North Pacific States and western British Columbia and appears to divide into at least four well-marked races. The first, a large and very pilose form, ranges along the coast from British Columbia to Humboldt County in California. The second, a large and moderately hairless form, is the common form of the coast belt of middle California, while a more opaque form with the sides of the elytra more angulate replaces it in southern California, and a smaller form ranges throughout the Sierra Nevada region. These phases, of course, pass from one into another.

* "A Monographic Revision of the Species of *Cremastochilus* of the United States," by George H. Horn, M.D., *Proceed. Am. Phil. Soc.*, Vol. XVIII (1879), p. 385.